AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A data transmitting and receiving system comprising:

a random number generator which generates a random number sequence;

a random-interval pulse sequence generator which generates a random-interval pulse sequence of data, which is to be transmitted, using the random number sequence generated by the random number generator;

a template pulse sequence generator which generates a reference template pulse sequence used to detect the start point of the random-interval pulse sequence and generates pulse sequences for a signal 0 and a signal 1;

a random number sequence detector which receives the random-interval pulse sequence and detects information regarding the start point of a random number sequence, which is used to make the received random-interval pulse sequence, using the reference template pulse sequence; and

a comparator which compares the pulse sequences for the signal 0 and the signal 1 based on the start point information regarding the random number sequence with the received random-

interval pulse sequence, and determines whether the value of the received random-interval pulse sequence is 0 or 1.

2. (Original) The system of claim 1, wherein the random-interval pulse sequence is generated at an Ultra Wide Band (UWB).

3. (Original) The system of claim 1, wherein the random-interval pulse sequence generator generates the random-interval pulse sequence using pulse position modulation.

4. (Original) The system of claim 1, wherein the template pulse sequence generator generates the reference template pulse sequence based on information regarding the same random number sequence as a transmitter uses to generate the random-interval pulse sequence.

5. (Original) The system of claim 1, wherein the random number sequence detector detects the start point information regarding the random number sequence by checking the degree of which the energy distribution of the spectrum of the received random-interval pulse sequence matches of the energy distribution of the spectrum of the reference template pulse

sequence, which is generated by the template pulse sequence generator, and determining whether the degree of match exceeds a predetermined critical value.

6. (Original) The system of claim 1, wherein the template pulse sequence generator generates the pulse sequences such that each pulse of the pulse sequence corresponding to the signal 0 is out of phase with each pulse of the pulse sequence corresponding to the signal 1 by a predetermined degree.

7. (Original) The system of claim 1, wherein the template pulse sequence generator generates reference pulse sequences by adjusting the widths of the pulses of the pulse sequence for the signal 0 to be different from the widths of the pulse of the pulse sequence for the signal 1 to a predetermined degree, so as to distinguish between the reference pulse sequences representation of 0's and 1's.

8. (previously presented): A wireless data receiving apparatus comprising:

a template pulse sequence generator which generates a reference template pulse sequence used to detect the start point of a received random-interval pulse sequence and generates a pulse sequence for a signal 0 and a pulse sequence for a signal 1;

a random number sequence detector which receives the random-interval pulse sequence and detects information regarding the start point of a random number sequence used to generate the random-interval pulse sequence; and

a comparator which compares the received random-interval pulse sequence with the pulse sequences for the signal 0 and the signal 1, which are generated by the template pulse sequence generator, based on the start point information detected by the random number sequence detector and determines whether the value of the received random-interval pulse sequence is 0 or 1.

9. (Original) The apparatus of claim 8, wherein the received random-interval pulse sequence is generated at a UWB.

10. (Original) The apparatus of claim 8, wherein the template pulse sequence generator generates the pulse sequences such that each pulse of the pulse sequence for the signal 0 are out of phase with each pulse of the pulse sequence for the signal 1 by a predetermined degree.

11. (Original) The apparatus of claim 8, wherein the template pulse sequence generator generates reference pulse sequences by adjusting the pulse width for the signal 0 to be different from the pulse width for the signal 1 to a predetermined degree, so as to distinguish between the reference pulse sequences representation of 0's and 1's.

12-14. (cancel)

15. (Original) A wireless data transmitting/receiving method comprising:

(a) generating a random number sequence;

(b) generating a random-interval pulse sequence for data, which is to be transmitted, using the random number sequence;

(c) generating a reference template pulse sequence used to detect the start point of the received random-interval pulse sequence;

(d) receiving the random-interval pulse sequence and detecting information regarding the start point of a random number sequence used to generate the received random-interval pulse sequence, using the reference template pulse sequence;

(e) generating reference pulse sequences for a signal 0 and a signal 1 based on the start point information regarding the random number sequence; and

(f) comparing the reference pulse sequences for the signal 0 and the signal 1 with the received random-interval pulse sequence and determining whether the value of the received random-interval pulse sequence is 0 or 1 based on the result of comparison.

16. (Original) The method of claim 15, wherein the random-interval pulse sequence is generated at a UWB.

17. (Original) The method of claim 15, wherein during (b), the random-interval pulse sequence is generated using pulse position modulation.

18. (Original) The method of claim 15, wherein during (c), the reference template pulse sequence is generated based on information regarding the same random number sequence as a transmitter uses to generate the random-interval pulse sequence.

19. (Original) The method of claim 15, wherein during (d), the start point information is detected by checking the degree of which the energy distribution of the spectrum of the received random-interval pulse sequence matches the energy distribution of the spectrum of the reference template pulse sequence and determining whether the degree of match exceeds a predetermined critical value.

20. (Original) The method of claim 15, wherein during (e), the reference pulse sequences are generated such that each pulse of the pulse sequence for the signal 0 is out of phase with each pulse of the pulse sequence for the signal 1 by a predetermined degree.

21. (Original) The method of claim 15, wherein during (e), the reference pulse sequences are generated such that the width of each pulse of the pulse sequence for the signal 0 is adjusted to be different from the width of each pulse of the pulse sequence for the signal 1 to a predetermined degree, so as to distinguish between the reference pulse sequences representation of 0's and 1's.

22. (Original) A wireless data receiving method comprising:

(a) generating a reference template pulse sequence used to detect the start point of a received random-interval pulse sequence;

(b) receiving the random-interval pulse sequence and detecting information regarding the start point of a random number sequence used to generate the received random-interval pulse sequence using the reference template pulse sequence;

(c) generating reference pulse sequences for a signal 0 and a signal 1 based on the start point information regarding the random number sequence; and

(d) comparing the reference pulse sequences for the signal 0 and the signal 1 with the received random-interval pulse sequence and determining whether the value of the received random-interval pulse sequence is 0 or 1.

23. (Original) The method of claim 22, wherein the random-interval pulse sequence is generated at a UWB.

24. (Original) The method of claim 22, wherein during (c), the reference pulse sequences are generated such that each pulse of the pulse sequence for the signal 0 is out of phase with each pulse of the pulse sequence for the signal 1 by a predetermine degree.

25. (Original) The method of claim 22, wherein during (c), the reference pulse sequences are generated such that the widths of pulses of the pulse sequence for the signal 0 are different from the widths of pulses of the pulse sequence for the signal 1 to a predetermined degree, so as to distinguish between the reference pulse sequences representation of 0's and 1's.

26-30. (cancel).

31. (previously presented): The data transmitting and receiving system of claim 1, wherein the template pulse sequence generator generates the pulse sequences, such that each pulse of the pulse sequence for the signal 0 is out of phase with each pulse of the pulse sequence for the signal 1 by a predetermined degree.

32. (previously presented): The data transmitting and receiving system of claim 1, wherein the template pulse sequence generator generates the pulse sequences, such that a width of each pulse of the pulse sequence for the signal 0 is adjusted to be different from a width of each pulse of the pulse sequence for the signal 1 to a predetermined degree, so as to distinguish between the reference pulse sequences representation of 0's and 1's.

33. (previously presented): The wireless receiving apparatus of claim 8, wherein the template pulse sequence generator generates the pulse sequences, such that each pulse of the pulse sequence for the signal 0 is out of phase with each pulse of the pulse sequence for the signal 1 by a predetermined degree.

34. (previously presented): The wireless receiving apparatus of claim 8, wherein the template pulse sequence generator generates the pulse sequences, such that a width of each pulse of the pulse sequence for the signal 0 is adjusted to be different from a width of each pulse of the

pulse sequence for the signal 1 to a predetermined degree, so as to distinguish between the reference pulse sequences representation of 0's and 1's.